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Form MR-REV-SMO (DOGM - Revise/Amend Change Form)  
(Revised November 21, 2006)

DIV. OF OIL, GAS & MINING

## Application to Revise a Notice of Intention to Commence Small Mining Operations or Exploration

<b>Operator:</b> Red Leaf Resources			
<b>Mine Name:</b> Southwest # 1		<b>File Number:</b> E on 047/0102 5	
Provide a detailed listing of all changes to the Notice that will be required as a result of this change. Individually list all maps and drawings that are to be added, replaced, or removed from the Notice. Include page, section and drawing numbers as part of the description.			
DETAILED SCHEDULE OF CHANGES TO THE NOTICE			
			Description of map, text, or materials to be changed
ADD	REPLACE	REMOVE	Page 3
ADD	REPLACE	REMOVE	Page 4
ADD	REPLACE	REMOVE	Page 5 (information now contained on p. 4)
ADD	REPLACE	REMOVE	Attachment A: Narrative
ADD	REPLACE	REMOVE	Figure 1: General Layout Map
ADD	REPLACE	REMOVE	Figure 2: Site Detail Map
ADD	REPLACE	REMOVE	Attachment D: Bond Calculation
ADD	REPLACE	REMOVE	Attachment E: Cover Report Cultural Resources
ADD	REPLACE	REMOVE	

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments and obligations, herein.

Laura S Nelson  
Print Name

Laura S Nelson, VP. Energy & Environmental Development  
Sign Name, Position

August 8, 2012  
Date

**Return to:**

State of Utah  
Division of Oil, Gas and Mining  
Attn: Minerals Regulatory Program  
1594 West North Temple, Suite 1210  
Box 145801  
Salt Lake City, Utah 84114-5801  
Phone: (801) 538-5291 Fax: (801) 359-3940  
P:\GROUPS\MINERALS\WP\FORMS\notices\Final\revision\_SMO\_EXP.doc

FOR DOGM USE ONLY:	
File #: M/	/
Approved: _____	
Bond Adjustment: from (\$)	
to \$ _____	

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## 5. Ownership of Land Surface:

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Private (Fee) ( ) BLM ( ) US Forest Service ( )  
 State Trust Land/School Sections (X) State Sovereign Lands ( )

Other (please describe):

Name SITLA Address 675 East 500 So Suite 500 SLC, UT 84102  
 Name \_\_\_\_\_ Address \_\_\_\_\_  
 Name \_\_\_\_\_ Address \_\_\_\_\_  
 Name \_\_\_\_\_ Address \_\_\_\_\_

## 6. Ownership of Minerals:

Private (Fee) ( ) BLM ( ) US Forest Service ( )  
 State Trust Land/School Sections (X) State Sovereign Lands ( )

Other (please describe):

Name SITLA Address 675 East 500 So Suite 500 SLC, UT 84102  
 Name \_\_\_\_\_ Address \_\_\_\_\_  
 Name \_\_\_\_\_ Address \_\_\_\_\_  
 Name \_\_\_\_\_ Address \_\_\_\_\_

BLM Claim Number(s): \_\_\_\_\_

Utah State Lease Number(s): ML 50150

BLM/USFS Lease or Project File Number(s): \_\_\_\_\_

Name of Lessee(s): Red Leaf Resources, Inc.

7. Have the above surface and mineral owners been notified in writing? Yes X No \_\_\_\_\_  
 If no, why not? \_\_\_\_\_

8. Does the Entity have legal right to enter and conduct mining operations on the land covered by this notice? Yes X No \_\_\_\_\_

What is the pre-mining land use, i.e. cropland, grazing, wildlife habitat? GrazingWhat is the postmining land use? Grazing

Please be advised that if State Trust Lands are involved, notification to the Division of Oil, Gas and Mining alone does not satisfy the notification requirements of Mineral Leases upon State Trust Lands. Exploration or mining activity on State Trust Lands requires a minimum of 60 days notice to the Trust Lands Administration prior to commencing any activities. Please contact the School Institutional Trust Lands Administration (SITLA) at (801) 538-5508 for notification requirements.

## II. PROJECT LOCATION &amp; MAP (Rule R647-3-105)

## 1. Project Location &amp; Map (legal description):

County(ies): Uintah

NE 1/4, of NE 1/4, of SW 1/4, Section: <u>30</u>	Township: <u>13 S</u>	Range: <u>23 E</u>
SE 1/4, of NE 1/4, of SW 1/4, Section: <u>30</u>	Township: <u>13 S</u>	Range: <u>23 E</u>
SW 1/4, of NW 1/4, of SE 1/4, Section: <u>30</u>	Township: <u>13 S</u>	Range: <u>23 E</u>
NE 1/4, of NW 1/4, of SE 1/4, Section: <u>30</u>	Township: <u>13 S</u>	Range: <u>23 E</u>

UTM East: 4 (if known) UTM North: 13 S (if known)

Name of Quad Map for Location: Bates Knolls

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2. **Is the project within an incorporated area?** ( ) Yes (X) No  
If yes, what is the town or city? \_\_\_\_\_
3. **Location and Operations maps** must be plotted at a scale to accurately identify locational landmarks and operations details. All maps must include a north arrow, scale, appropriate labels, and title box including the mine name, township, range and section.
- a. The **general location map** must be the scale of a USGS 7.5 minute series map or equivalent (1"=2000') and identify new or existing access roads.
- b. The **operations map** (1"=200' or other scale as determined necessary by the Division) must be labeled and identify:
- The area to be disturbed;
  - The location of any existing or proposed operations including access roads, drill holes, trenches, pits, shafts, cuts, or other planned activities; and
  - Any adjacent previous disturbance for which the operator is not responsible.
- (Contact the Division for a list of consultants and land surveyors for mapping assistance.)
4. The proposed <sup>30</sup> ~~2~~ acre or less) disturbed area (including access/haul roads) should be marked ON THE GROUND with metal T-Posts (or with some other marker of equal effectiveness). Markers should be appropriately spaced so that the next marker in either direction is clearly visible with the naked eye.

### III. **OPERATION PLAN** (Rule R647-3-106)

- Type of mining:** Surface (X) Underground ( )
- Mineral(s) to be mined:** oil shale
- Amount of material** to be extracted, moved, or proposed to be moved: Less than 2 acres of site excavation and use. Materials to remain at site.
- Will any **water, liquid chemicals, reagents, or other solutions** be used, produced or discharged as part of the mining or milling process? Yes ( ) No (X) If yes, please describe (add extra pages if needed): \_\_\_\_\_
- Provide a brief **description of the proposed mining operation**, and onsite processing facilities (add extra pages if necessary). See Attachment A "Narrative"
- ( ) **New Road(s):** Length \_\_\_\_\_ (ft), Width \_\_\_\_\_ (ft)
- ( ) **Improved Road(s):** Describe improvements that need to be made to existing roads to access the site, including the Length \_\_\_\_\_ (ft) and Width \_\_\_\_\_ (ft) of **new disturbances**.
- Total project surface **acreage to be disturbed:** 10 (acres) PLEASE SPECIFY **EXACT ACREAGE** (this will be used to determine surety bond amount – see #VI).
- Proposed **startup date** (month, year): August 2011
- Proposed **completion**, if known (month, year): February 2014

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NOTICE OF INTENT  
TO CONDUCT SMALL MINING ACTIVITIES  
ML 50150

Red Leaf Resources, Inc. (Red Leaf) provides this Notice of Intent to Conduct Small Mining Activities on trust lands managed by the State and Institutional Trust Lands Administration (SITLA), pursuant to the Division of Oil Gas and Mining Rule R 647-3, Small Mining Operations.

In support of this NOI, Red Leaf offers the following information consistent with the format identified in the Department of Oil Gas and Mining Notice of Intent instructions:

1. The subject of this Notice is the SITLA mineral lease ML 50150, owned by Red Leaf Resources, Lessee, Inc., 200 West Civic Center Drive, Sandy, Utah 84074. The lands proposed small mining operations in this Notice are located [NE  $\frac{1}{4}$  NE  $\frac{1}{4}$  SW  $\frac{1}{4}$ ], [SE  $\frac{1}{4}$  NE  $\frac{1}{4}$  SW  $\frac{1}{4}$ ], [SW  $\frac{1}{4}$  NW  $\frac{1}{4}$  SE  $\frac{1}{4}$ ], [NW  $\frac{1}{4}$  NW  $\frac{1}{4}$  SE  $\frac{1}{4}$ ]; Section 30 Township 13 Range 23 E in Uintah County (SLB&M).  
A location map showing the area proposed for mining operations and the operations map are attached to this filing as **Figure 1, "Red Leaf Resources General Layout Map."**
2. The mining excavation work proposed is for low depth surface mining. The mining equipment will consist of excavators, front end loaders, haul trucks, scrapers and dozers. This equipment will be used to selectively mine within the mine application area up to a depth of 100 ft.  
Uintah County zoning regulations show the proposed disturbance area to be within the M&G-1 zone. Underground and surface mining are conditional uses within the M&G-1 zone. Red Leaf Resources has a Conditional Use Permit with the county and provides this permit as **Attachment "A"** to this NOI.
3. Red Leaf is concurrently filing this Notice of Intent to Conduct Small Mining Activities with State Institutional Trust Lands.
4. The mineral deposits to be developed are oil shale deposits. The proposed activities include: site preparation; removal of overburden; excavation of oil shale; operation of an earthen capsule; replacement of oil shale and overburden; and reclamation. The depth from the surface to the top of the oil shale deposits on the site is approximately 100 feet. The oil shale deposits on the site are roughly 65 feet in depth.
5. The topography of the proposed development area is relatively flat with rolling hills. The vegetative cover on the site is predominantly grass/sagebrush community with interspersed stands of pinion and juniper. No water bodies are present on the site.  
Red Leaf is currently conducting activities at Southwest #1, in accordance with its permit for Small Mining Operations issued January 25, 2011, . The structures present on the mining site are temporary and were constructed as part of Red Leaf



Resource's exploration activities on the site. These structures include office facilities, a maintenance tent, Capsule & support process equipment, a tank farm, Fire water tanks & support equipment.

There is an access road leading to the property. The existing site access road is off of Canyon Reservoir Road ¼ mile to the Northwest. There is a two-track road, approximately ten (10) feet in width, from the Canyon Reservoir Road to the Northwestern corner of the proposed small mine site. This road was maintained under the small mine permit. Red Leaf will continue to maintain this road and the county road during the operation of the small mine. The Road Maintenance Agreement with Uintah County is provided as **Attachment "B"**

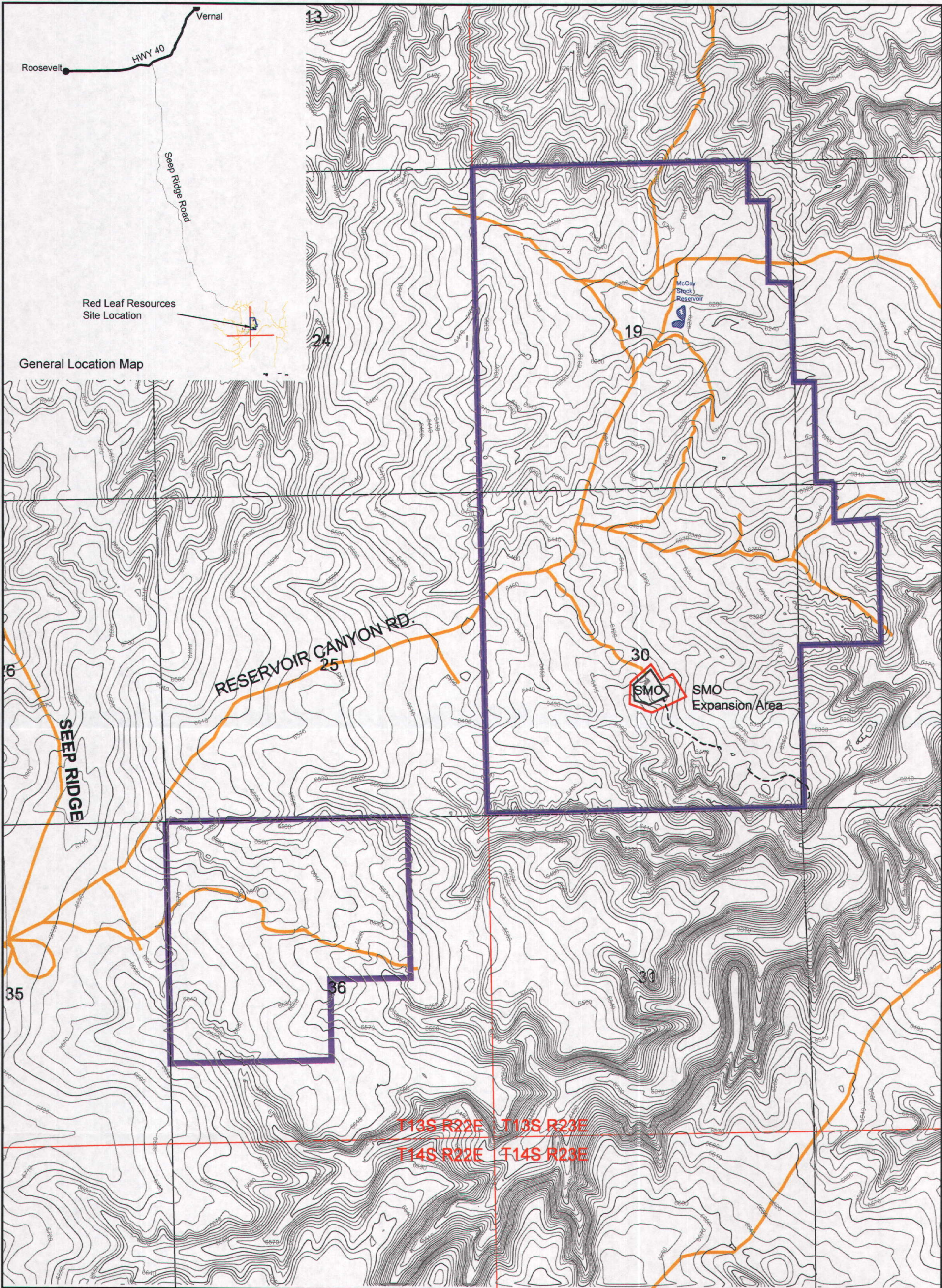
6. To the best of Red Leaf's understanding and site review, all pre-existing, un-reclaimed, surface or underground mining disturbances located on the site are those associated with Red Leaf's exploration activities at the site.  
Red Leaf has identified a 10 acre disturbance for the small mine operation (Figure 2, "Oil Shale Project General Arrangement").
7. Mining operations will be limited to ten (10) acres within the area shown as the application area (see **Figure 2**, Soil from the area of the operating mine and capsule construction areas will be stockpiled for reclamation. The mined material will be crushed, screened and sorted into four (4) materials. The material categories are fines, gravel, rubble ore and ramp material. Mine material will be used for testing and scale-up of the EcoShale™ In-Capsule Process.  
The EcoShale In-Capsule Process consists of a quarry lined with an impermeable barrier, fitted with metal pipes with ore deliberately placed back in the impound. The excavation of new material will be initiated with the displaced overburden and mined shale similarly stored on remaining acres at the site. The 10 acre area identified is inclusive of all areas needed for equipment, staging, stockpiling, processing, and structures on site. (See "**Site Layout, Figure 2.**")
8. RLR does not plan to drill any new core holes within the 10 acre site
9. On site gas burners used for heating are on skids and removable at the end of the operations. No permanent structures will be or have been erected.
10. Figure 1, Southwest # 1 shows the current site and the proposed area of additional disturbance for the small mine operations. This location is inclusive of equipment. Figure 2 Southwest # 1 depicts the site arrangement.
11. As part of this small mine operation, Red Leaf will be identifying appropriate markets, haul routes, production targets, sales prices and potential for annual sales. Once collected, this data will be provided to the Division of Oil Gas and Mining and the School and Institutional Trust Lands Administration.
12. The footprint for mining and excavation activity is less than 2 acres.
13. Red Leaf Resources will conduct reclamation consistent R647-3-109. The bond calculation is provided as Attachment "D."
14. This site is in the footprint of Red Leaf's planned Large Mine activities Species and cultural survey assessments for this site are covered under the reports filed as part of Red Leaf's Notice of Intent to Commence Large Mine Operations. The full Cultural Resources report is on file with the State Historical Preservation Office. A drainage control plan was included with the LMO-NOI and covers the footprint of the current and proposed SMO acreage. Stormwater will be managed specific to

**Red Leaf Resources**

**SMO Narrative: Attachment A**

the SMO footprint. Best Management Practices (BMPs) will be implemented within the boundary of the SMO disturbance to manage stormwater runoff during this phase of the project.





**LEGEND**

- Existing Roads
- Existing Jeep Road
- Topography Contour (10ft Intervals)
- Existing SMO Boundary
- SMO Expansion Boundary
- Red Leaf Resources Mineral Lease Boundary/Proposed Permit Boundary

2000 1000 0 2000

Feet

NORTH

**FIGURE 1**

**ECOBHALE** **REDleaf**

Red Leaf Resources  
Southwest #1  
S/047/0102  
General Layout Map

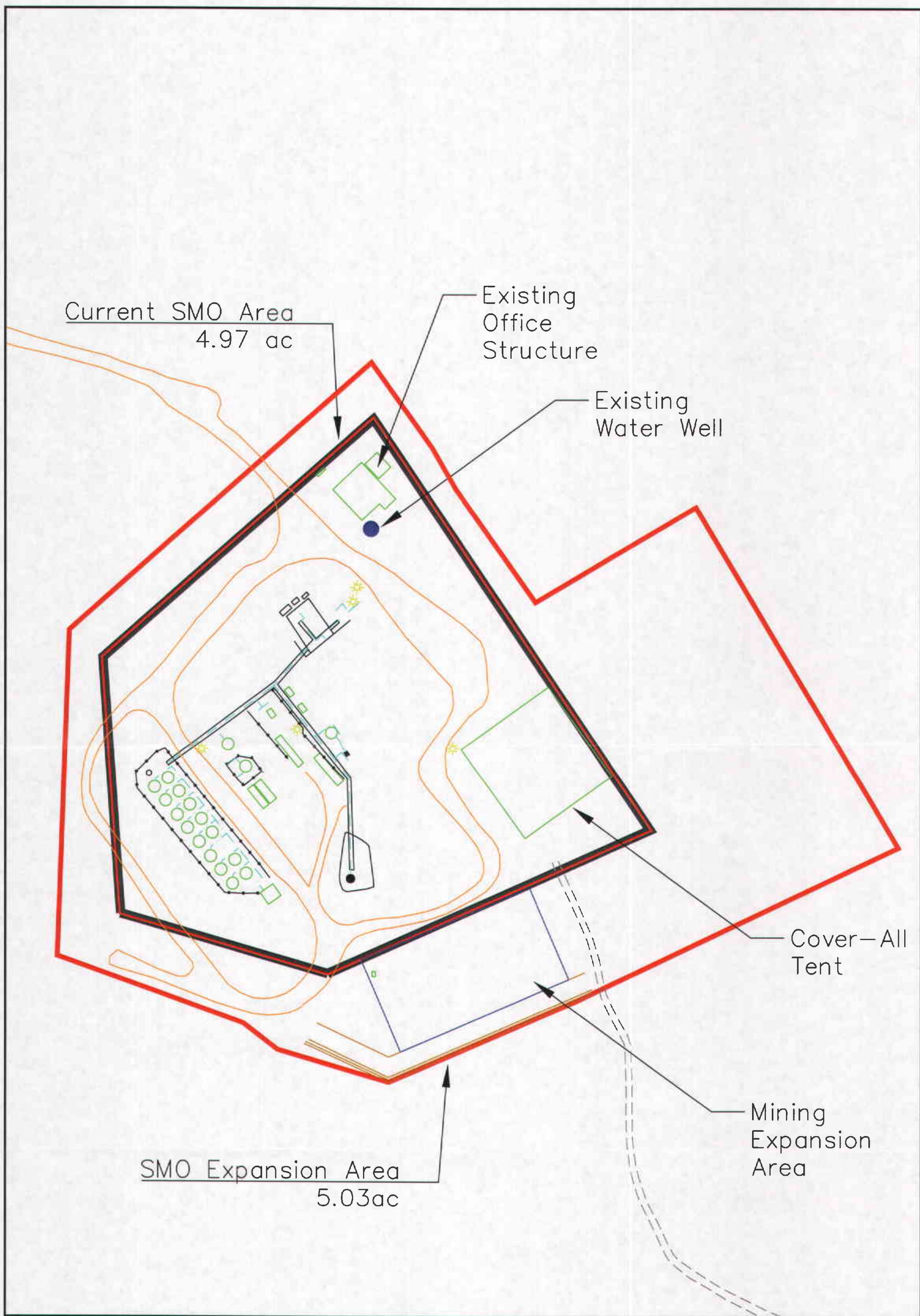
DATE: 07/30/12  
RE: 187.15/Environmental/SAB studies  
/Figure 1-General Layout Map 7-30-12.dwg

SCALE:  
NOTED

**NORWEST**  
CORPORATION

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# LEGEND

- SMO Expansion Boundary
- Existing SMO Boundary
- Existing Buildings
- Existing Roads
- Existing Jeep Road

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FIGURE 2

**ECOSHALE** TECHNOLOGY

**REDleaf** RESEARCH, LLC

Red Leaf Resources  
Southwest #1  
S/047/0102  
Site Detail Map

DATE: 07/30/12  
FILE: 107.15/Environmental/SMO details  
Figure 2-Site Detail Map 7-30-12.dwg

SCALE:  
NOTED

**NORWEST**  
CORPORATION



Ref.	Description (Demo cost Other cost covered through site bond)	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Office Structure	Wood metal single story house structure	02 41 16 1000	4800	Ea										1	Ea		1	Ea	4800
	Office Structure addition	Wood metal mobile home trailer	02 41 16.13 0020	0.33	Ea	50	10	8							1	Ea		4000	Ea	1320
	Pug Mill Plant	Steel Material Handling - portable	02 41 16.13 0020	0.33	Ea	50	10	8							2	Ea		4000	Ea	1320
	Crushing Plant	Steel Material Handling - portable	02 41 16.13 0020	0.33	Ea	50	10	8							3	Ea		4000	Ea	1320
	Screening Plant	Steel Material Handling - portable	02 41 16.13 0020	0.33	Ea	50	10	8							4	Ea		4000	Ea	1320
	Footings	Concrete	02 41 16.17 1080	15.05	Ea										30	Ea		30	Ea	451.5
	Generator Set	Steel Building-Large	02 41 16.13 0020	0.33	/CF	20	8	10							4	ft		1600	CF	528
	Burner-Blower System	Steel Building-Large	02 41 16.13 0020	0.33	/CF	40	10	20							1	ft		8000	CF	2640
	Overhead Condensate system	Steel Building-Large	02 41 16.13 0020	0.33	/CF	10	4	8							1	ft		320	CF	105.6
	Motor control conex trailer	Steel Building-Large	02 41 16.13 0020	0.33	/CF	40	8	8							1	ft		2560	CF	844.8
	Conex Trailer	Steel Bldg-Large	02 41 16.13 0020	0.33	/CF	40	8	8												
	Storage tanks																			
	Removal of Tanks (above ground)	9000 gal to 12000 gal tank	02 65 10.30 0130	1625	Ea										19	Ea		19	Ea	30875
	Remove Sludge and water	9000 gal to 12000 gal tank	02 65 10.30 0320	450	Ea										5	Ea		19	Ea	8550
	Haul Tank to certified dump	8000 gal +, 100 mile rt	02 65 10.30 1213	1425	Ea										19	Ea		19	Ea	27075
	Cover-all tent building	Fabric Steel, Min	02-41-16-1200	7200	Ea															
	no interior walls deduct 50%		02-41-16-5000	-50%	%															3600
	Instrument air building	Steel Building-Large	02 41 16.13 0020	0.33	/CF	40	8	8							1	ft				2560
	Weather station	Steel Building-Large	02 41 16.13 0020	0.33	/CF	8	8	40							1	ft		2560		844.8
	Septic Tank	Pre-cast 100-1250 gal	02 41 13.44 0100	223	Ea										1	Ea		1	Ea	450
	Misc. Pipes	Steel 6"-10"	02 41 13.40 0140	2.97	/CF										300	ft		300	ft	891
	Equipment's Disposal Cost																			
	Weight of Debris Demolished														786	tons				
	Haul to recycling Center	Dump 16 ton payload--Excl whole bldgs	02 41 19.23 2136	23.5	CY										662	CY				15561.08
	Sub-total Structures																			105056.8
	Indirect Cost																			
	Contingency @ 5%	Demolition overhead cost																		5252.839
	Project Management @ 5%	Demolition overhead cost																		5252.839
	Water Well																			
	900' @ < 7" diameter																			15,539
	General Site for SMO																			
	Standard site cost for 10 Acres																	Change		52,200
	Total Site Bond																			183,301
	Concrete Demolition	No concrete floors or structures																		0
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			0
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			183,301

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